MAINTENANCE NOTE 21 (for Electronics Technicians)
Engineering Division
W/OSO321:FJZ

Vaisala Battery Tester

General

The Vaisala battery tester is now available in stock under the ASN J208-3. Sites using Vaisala radiosondes should have already received the Vaisala battery tester from the upper air program office. If a Vaisala site has not received a Vaisala battery tester, please contact Franz J.G. Zichy at (301) 713-1833 x128.

Once the Vaisala battery tester is received, sites are asked to ship their VIZ battery tester back to the NLSC. On the WS Form H-14 (Equipment Return Tag), mark the block "Instruction from Weather Service Headquarters" and ship the VIZ battery tester to the following address:

National Logistics Support Ctr.
1510 E. Bannister Rd., Bldg. 1
Kansas City, MO 64131

NOTE: Once sites receive the Vaisala battery tester, Sites are asked to ship their VIZ battery tester back to the NLSC.

This note divided into the following parts:

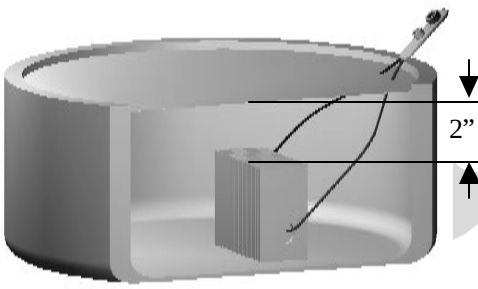
- Part A describes the battery preparation procedure.
- Part B describes the battery testing procedure.

PROCEDURE

A. Battery Preparation Procedure

> **NOTE:** Activating the battery must be done no more than 20 minutes before radiosonde release. Earlier activation may cause the battery to fail prematurely during flight.

Unfold the battery wrapper, and with scissors, cut the bag open along one edge of the bag (use caution to avoid cutting the wire leads), and remove the battery. Discard the bag.



The battery must be immersed in water with at least 2" of water over the top.

Figure 1

1. Activate the battery by immersing it in clean, room temperature water (»25°C) for **NO LESS THAN 3 minutes**. If you lose track of the elapsed immersion time, soak the battery longer than may be necessary to ensure that the three minute minimum is met. It is more desirable to soak the battery too long than not long enough. DO NOT use water that has a high mineral content or which has had iodine or large amounts of chlorine added. DO NOT immerse the battery connector located at the end of the wire leads. Immersion time should not be varied due to water temperature. The container used to hold the water must be made of glass, plastic or paper. **DO NOT USE METAL CONTAINERS! THE WATER LEVEL MUST BE AT LEAST 2” (5 CM) ABOVE THE TOP OF E BATTERY** (see Figure 3).

2. After a MINIMUM OF 3 MINUTES, remove the battery from the water leaving as much water in the battery as possible. DO NOT SHAKE OR SQUEEZE WATER OUT OF THE BATTERY!

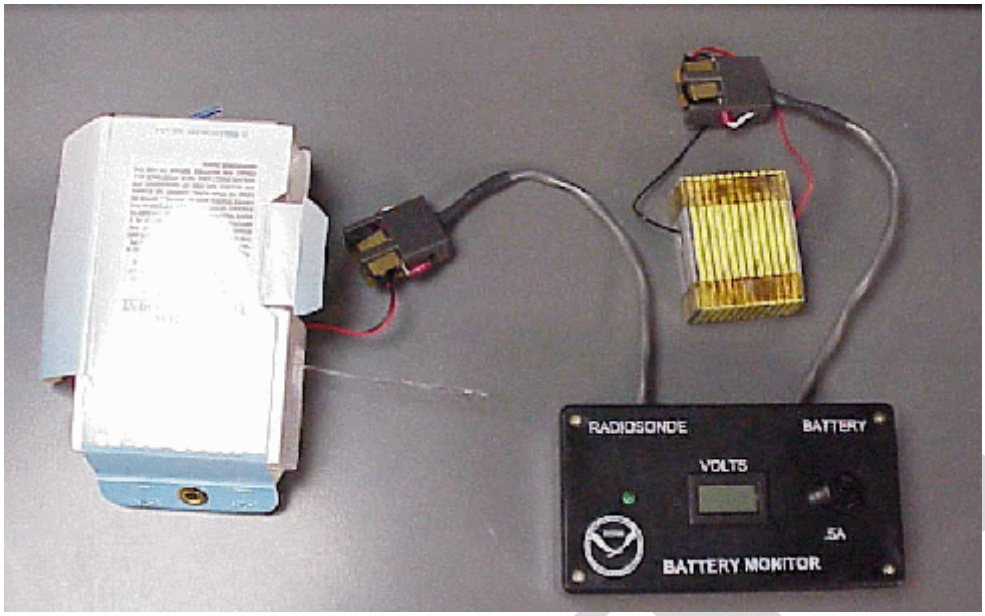


Figure 2

B. Vaisala Battery Testing Procedure

NOTE: When testing the battery, ensure the battery is under a load by always connecting the radiosonde to the battery tester (figure 2).

1. Place the battery on a paper towel, and on an area with sufficient room to include the battery tester and radiosonde. See figure 2 for an approximate setup.

2. Note the battery connector on the battery tester. The battery terminal should be placed into the battery test connector so that the terminal leads face away from the end cap. See figure 3.

NOTE: The battery tester's circuitry is designed to withstand accidental reverse battery polarization.

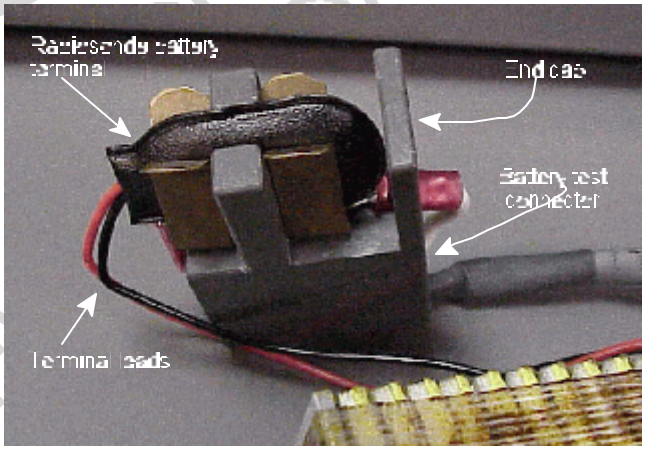


Figure 3

3. Slide the battery terminal into the battery test connector.

4. Slide the radiosonde terminal into the radiosonde connector.
5. Note the LCD display and green LED on the face of the battery tester (figure 4).

Figure 4

6. When the battery if first hooked up, the LCD will display an approximate 10 to 12 volts (this reading is not important).

NOTE: If the battery does not reach at least 15 Volts within 10 minutes of being connected to the radiosonde, the battery should be rejected and replaced with a warranty replacement unit. The NWS Form B-29 and NWS Form H-6 should be annotated.

7. At approximately 14.5 to 15 volts, the green LED will start to flicker, and will increase in intensity as the battery voltage increases.

NOTE: A lit green LED signifies the minimum battery voltage required for a radiosonde flight.

8. Allow the battery voltage to rise until the LCD display shows an approximate 17 volts.

9. Disconnect the batter from the battery tester, wipe any excess water from the outside of the battery with a paper towel, and insert the battery into the radiosonde battery compartment as shown in Figure 5.

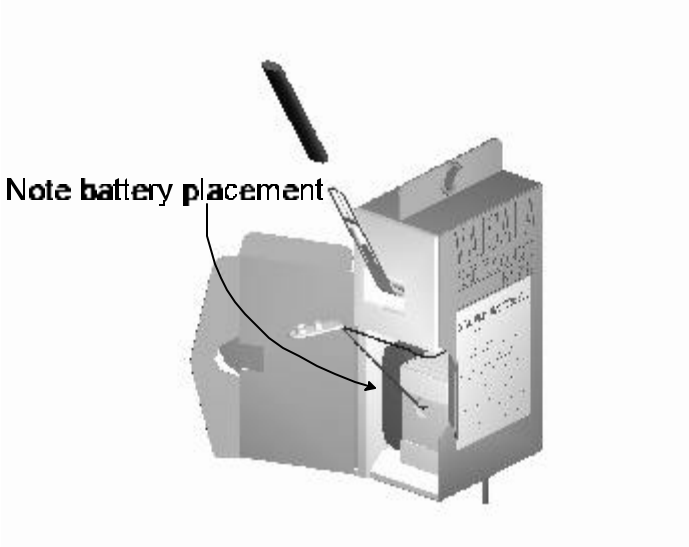


Figure 5

10. Place the folded radiosonde mailing bag inside the battery compartment on the left side of the battery. This will help prevent the battery from moving during the flight.

11. Insert and position the battery wire leads such that they are between the mailing bag and the top of the battery compartment. Reinstall the battery compartment cover. Insert the sides of the cover in between the radiosonde Styrofoam case and the outer cardboard jacket.

12. Close the flaps on the portion of the cardboard jacket over the battery and secure the flaps with the interlocking tabs.

This completes the battery preparation and testing procedures.

C. Vaisala Radiosonde Battery Tester Maintenance

1. The voltage displayed on the LCD should only be used as a reference. Battery tester voltage with load will display an approximate 1-2 volts lower than a calibrated volt meter.

2. With a volt meter verify that the LED lights at a minimum of 15 volts. Perform this check on a quarterly basis

3. If the battery tester is suspected to be defective, return the unit to the NRC for repair.

TECHNICAL ASSISTANCE

For questions or problems regarding this note, contact Franz J.G. Zichy at (301) 713-1833 x128.

John McNulty
Chief, Engineering Division